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ABSTRACT

A "meta-assessment" was done of 13 pilot projects on student outcomes assessment in a variety of disciplines at 11 campuses in the California State University (CSU) system. These projects had developed both quantitative and qualitative strategies for collecting data on student learning outcomes. The meta-assessment was designed to identify key factors shared by successful projects. A three-part framework was used to specify and organize variables by which the projects were evaluated. Environmental and methodological factors served as "predictor" variables and project outcomes served as "criterion" scores. General factors that contributed to the relative effectiveness of the projects were identified by assessing the relationship between "predictor" and "criterion" variables. The assessment found that recruiting and maintaining faculty support was a key variable in project success but also showed high variability across projects. Administrative support was consistently reported as important, and better integration of the assessment agenda in campus-level policy and more concrete recognition of assessment activities for professional development was recommended. Project directors' training and experience in measurement and analysis was also identified as important. The key methodological variable was the development or adoption of adequate measures of student outcomes. (JB)

ACADEMIC CHALLENGES

ED 363 225

Student Outcomes Assessment

HE 026 835

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- increase awareness of the work of the CSU Institute for Teaching and Learning;
- increase access to the work of CSU/ITL affiliates;
- begin to build a subset of information on teaching and learning that supports *The National Teaching and Learning Forum (NTLF)*, ERIC/HE's newsletter;
- encourage use of the ERIC system by CSU/ITL member affiliates and the *NTLF* readership; and
- test a model for collaboration between ERIC/HE and a major higher education system.

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Introduction

The current assessment movement in higher education is driven by the wary partnership of reform and accountability, a partnership yielding a complex and diverse collection of assessment activities in university settings (Ewell, 1991). Over the last several years, the California State University (CSU) system has moved to construct an assessment agenda that responds to both reform and accountability in ways that preserve the commitment of the CSU to intellectual and programmatic diversity. Beginning in 1986, the Academic Program Improvement (API) Campus Grants Program supported a series of student outcomes assessment projects initiated by faculty in a variety of disciplines on eleven campuses of the CSU. These projects developed both quantitative and qualitative strategies for collecting data on student learning outcomes. Data from these initiatives provided the basis for planning ongoing programs of assessment in General Education and baccalaureate degree programs throughout the CSU.

Background: The Evaluation Study of CSU Pilot Projects

An evaluation study, supported by a grant from the U.S. Department of Education Fund for the Improvement of Postsecondary Education (FIPSE) and conducted under the aegis of the CSU Institute for Teaching and Learning, provided a "meta-assessment" of the thirteen pilot projects. The pilot projects, briefly described in Table 1, developed and field-tested a diverse set of assessment measures, including portfolios, interviews, senior/capstone projects, surveys, and examinations. The "meta-assessment" of the projects was designed to identify key factors shared by successful projects. The pilots thus made it possible to define elements of effective assessments in the CSU and to disseminate the best practices developed by these experimental projects. Moreover, the diversity of the projects, both disciplinary and curricular, provided information about the essentials of good assessment practice across curricular boundaries.

List of API Student Outcomes Assessment Projects

Table 1: CSU Student Outcomes Assessment Pilot Projects 1986-1989

Director/Campus	Grant	Year	Project Title & Focus
Andrew Moss *Pomona*	$39,374	1986	***Enhancing Quality by Assessment: A General Education Project*** *Focus:* Development of a comprehensive assessment program for an interdisciplinary General Education program
Kenneth Nyberg *Bakersfield*	$66,708	1986,87	***An Empirical Evaluation of Five Baccalaureate Social Science Programs*** *Focus:* Development of a model to conduct longitudinal assessments of student performance and perceptions of degree programs in anthropology, economics, political science, psychology, and sociology
Priscilla Chaffe-Stengel *Fresno*	$22,562	1987	***Assessment of Undergraduate Writing Competence*** *Focus:* Assessment of student performance on the Upper Division Writing Exam as a function of course exposure and language proficiency

Table 1 — Continued

Director/Campus	Grant	Year	Project Title & Focus
Catherine Dezseran Peter Grego *Northridge*	$25,532	1987	***Student Outcomes Assessment in Academic Program Improvement in Theatre*** *Focus*: Development of a performance-based mastery test for summative and formative assessment of student achievement in theatre
Leigh Mintz Lu Ann Duffus *Hayward*	$ 9,880	1987	***Assessment of Majors: A Three-Campus, Three-Discipline Model*** *Focus*: Development of comprehensive examinations for seniors in biology, economics, and mathematics
Richard Giardina Newman Fisher *San Francisco*	$10,978		
Leon Dorosz Howard Shellhammer *San Jose*	$10,978		
Harry Polkinhorn *San Diego*	$25,467	1987	***Student Outcomes Assessment: Liberal Studies Major*** *Focus*: Development of a multi-measure assessment program for student outcomes in liberal studies
Priscilla Chaffe-Stengel *Fresno*	$27,490	1988	***Assessment of Undergraduate Reading Competence*** *Focus*: Assessment of student reading strategies and competence related to course assignments and library skills
S. Eugene Clark *Bakersfield*	$27,125	1988	***Knowledge and Attitudes in General Education: A CSU-Community College Joint Assessment*** *Focus*: Assessment of impact of GE course in Western civilization on students' knowledge and values

Table 1 — Continued

Director/Campus	Grant	Year	Project Title & Focus
P. Chris Cozby Jeffry Young *Fullerton*	$27,500	1988	***Student Outcomes Related to Curricular Variety in Gerontology*** *Focus*: Development of a model for cross campus assessment of outcomes for interdisciplinary programs in gerontology
Catharine Lucas *San Francisco*	$18,692	1988	***Assessing Outcomes for English Teacher Candidates*** *Focus*: Development of an assessment course to evaluate the subject-matter competency of teacher credential candidates in English language arts
Marylu Mattson *Sonoma*	$49,172	1988,89	***Integrating Student Outcomes Assessment into the Curriculum*** *Focus*: Development of a portfolio system to assess formative and summative outcomes for students in an interdisciplinary liberal studies program
Mary Cullinan *Hayward*	$20,635	1989	***Assessment of Student Outcomes: A Basic Writer's Writing Program*** *Focus*: Development of a model for assessing outcomes in the Intensive Learning Experience writing course sequence
Bessie Marquis *Chico*	$28,366	1989	***Outcomes Assessment of Four Classes of Nursing Graduates*** *Focus*: Development of a multi-measure assessment of nursing program graduates to identify trends in program effectiveness from 1983-89

Summary of Campus Projects: 1986-1989

The diversity of the thirteen projects studied is apparent in their different settings, focus, and strategies. They shared, however, a single goal: the creation of models for assessment with application to comparable programs throughout the CSU. Project directors addressed this goal at four different levels: **measurement, program, campus, and course.**

[The projects] shared...a single goal: the creation of models for assessment with application to comparable programs throughout the CSU.

At the **measurement** level, an assessment of theatre program outcomes at CSU Northridge, directed by Professors Catherine Dezseran and Peter Grego, was part of a departmental self-study. The project was aimed at curricular revision through the development of a mastery test assessing theatre knowledge, plus an evaluation of theatre ensemble teaching methods. One innovative result was the development of a faculty-generated Performance Assessment Instrument for measuring students' achievement in production areas of theatre. An assessment project in English language arts undertaken by Professor Catharine Lucas at San Francisco State University explored the use of an "assessment course" to certify the subject matter competency of teacher credential candidates. The assessment course, an alternative to standardized tests (inadequate) or direct observations (too costly), evaluated candidates' language arts preparation in four areas: oral, written, response to literature, and applied concepts. A third **measurement**-level project piloted an exit assessment for majors in mathematics/biology/economics. Project directors at three "sister" CSUs (Professors Leigh Mintz and Lu Ann Duffus at CSU Hayward, Professors Richard Giardina and Newman Fisher at San Francisco State University, and Professors Leon Dorosz and Howard Shellhammer at San Jose State University) worked with faculty in the three majors to design major "comp" exams. The assessment used a locally designed instrument administered by faculty from cooperating departments in this three-campus consortium.

In an ambitious **program**-level project, Professors P. Chris Cozby and Jeffry Young at CSU Fullerton developed a systemwide, interdisciplinary assessment of all programs in the CSU with course content in gerontology. One of their goals in describing CSU gerontology offerings was to reconcile program objectives with curriculum planning and assessment activities in gerontology. In addition, the survey developed in this project was intended as a model for continuing assessment of academic/career training in gerontology for current students and alumni. Professor Marylu Mattson at Sonoma State University designed a portfolio assessment system as an alternative to traditional outcomes measures for the Hutchings Interdisciplinary General Education

program. Recognizing that a persistent issue for portfolio assessments is faculty ownership, Mattson was careful to make faculty input a central feature of this experimental **program**-level assessment. At CSU Chico, Professor Bessie Marquis directed an assessment of Nursing School program outcomes, evaluating competency test outcomes, workplace competency, and the relation of program performance indicators (e.g., GPA) to job performance. English Professor Andrew Moss conducted an extensive program evaluation in the Interdisciplinary General Education Program at Cal Poly Pomona. In consultation with Peter Ewell, course-related assessment teams worked to produce guidelines for using assessment results as a tool for curricular and instructional improvement at Cal Poly. An evaluation of student learning outcomes in five majors in the CSU Bakersfield School of Social Sciences was directed by sociology Professor Kenneth Nyberg. This **program**-level initiative was adapted in part from models suggested by assessment programs in Tennessee and Missouri. The goal of the Nyberg study was a longitudinal description of learning outcomes and perceptions of undergraduate majors in anthropology, economics, political science, psychology, and sociology. Finally, a multi-measure assessment of student outcomes in the liberal studies program at San Diego State University was directed by English Professor Harry Polkinnorn. This pilot assessment used data from the ACT "College Outcomes Measures Program" as a starting point for program evaluation.

Both **campus**-level projects in the pilot group were conducted by Professor Priscilla Chaffe-Stengel at CSU Fresno. Aimed at the universal CSU writing and reading competency requirements, these projects used multiple indices to look at factors related to students' writing performance (measured by the Upper Division Writing Exam), and reading proficiency and behaviors (measured by standardized tests as well as by library use patterns, etc.). One of Chaffe-Stengel's goals for this assessment was the creation of "predictive profiles" for use in advisement.

At the **course** level, an assessment directed by Professor S. Eugene Clark at CSU Bakersfield measured pre- and post-course knowledge and attitudes in General Education courses in Western civilization/European history. An important focus of this project was to examine the "equivalency" of courses offered at Bakersfield College and CSU Bakersfield. As the project director noted, a common core was assumed in articulation agreements but faculty rarely had the opportunity to "examine the equivalent courses and student outcomes." A second **course**-level project, directed by Professor Mary Cullinan at CSU Hayward, addressed learning outcomes in remedial writing through assessment of student outcomes in Hayward's Intensive Learning Experience (ILE) writing course sequence. Noting the shift toward greater reliance on the remedial writing course program on this campus, director Cullinan stated that the project specifically addressed the need to collect information on writing outcomes for non-native speakers, who comprised 40 percent of CSU Hayward's basic writing students.

Evaluation

A three-part framework was used to specify and organize variables by which the projects were evaluated. The framework is illustrated in Table 2. Environmental and methodological factors served as "predictor" variables. Project outcomes served as "criterion" scores. General factors that contributed to the relative effectiveness of the projects were identified by assessing the relationship between "predictor" and "criterion" variables. For a detailed description of this analysis and results, refer to Riggs & Worthley, 1992.

ANALYSIS OF ENVIRONMENTAL FACTORS

Faculty Involvement

Projects differed significantly in reference to the inclusion of faculty participants in the planning/development of the project, faculty agreement with the nature of student performance criterion, perceived workload resulting from the project, and perceptions of ownership among faculty.

Faculty participation in project implementation and the perceived faculty workload were important indicators of assessment success.

The number of faculty involved in the initial planning of each project ranged from 2 to 100 with a mode of 4. The number of faculty involved in project implementation ranged from 2 to 400 (one project ended up universitywide in its second year) with a mode of 14. Directors generally reported high levels of faculty participation in the implementation of the project, support for the subsequent goals of the project, and consensus with the project plan. There were, however, some glaring exceptions. One director simply reported that "lack of faculty support made implementation impossible."

Faculty participation in project implementation and the perceived faculty workload were important indicators of assessment success. Faculty ownership (the perception that the project was locally controlled) and general faculty consensus with the assessment plan were also relatively good indicators. Participation of all faculty in initial planning stages appeared to have little to do with project outcomes.

Training/Experience of Faculty Participants

Project directors were almost exclusively senior/tenured members of their departments. The directors were also generally well-read and relatively experienced with student outcomes assessment. There was more variance in reference to other participating faculty. Many participants were hearing of "student outcomes assessment" for the first time.

Table 2: Factors Evaluated in Relation to Project Outcomes

Environmental Factors

Faculty Involvement
- Planning Participation
- Faculty Participation in Project
- Faculty Ownership
- Consensus with Plan
- Perceived Faculty Workload

Training/Experience
- Director's Training
- Faculty Training
- Director's Academic Experience

Support Variables
- Budget and Supplies
- Administrative Support
- Student Support

Existing Procedures
- Previous Assessment

Project Focus
- Content Domain
- Breadth of Audience

Methodological Factors

General Procedural Adequacy
- Goal Definition
- Selection of Outcomes
- Measures Developed
- Data Collection/Reporting
- Measurement Properties
- Statistical Analysis

Project Comprehensiveness
- Multicultural Issues
- Development of Multiple Measures
- Report Comprehensiveness

Cost Effectiveness
- Utility/Economy

Outcomes

Direct Outcomes
- Project Continuing
- Additional Funding
- Gains in Student Achievement
- Curricular Impact
- Better Teaching
- Feedback to Students
- New Measures Developed
- Better Data Use
- Dissemination of Results

Indirect Outcomes
- Recruitment/Retention
- Attitudes Toward Assessment
- New Moneys for Assessment
- Visibility of Assessment
- External Adoption

Of the three factors describing the training and background of project participants, only the project director's training and experience specific to student outcomes assessment ranked very high in association with project outcomes. Adequate planning and guidance by the project directors appeared sufficient to offset any lack of experience of project participants.

Support Variables

Significant variance existed in reference to project support variables such as budget and supplies. Ten directors reported receiving additional funds beyond the required matching funds from their university.

Administrative support was generally strong. No projects reported direct administrative resistance to student outcomes assessment, although there were varying degrees of administrative "red tape" associated with project implementation.

Student support was more mixed. Directors reported that students generally supported the goals of the projects, but frequently offered resistance to changes associated with the implementation of outcomes assessment. Resistance was especially prevalent when additional coursework and/or "tests" were part of the plan. Apparently, students were as sensitive to the "workload" issue as were faculty members

As for the subsequent impact of support variables on project outcomes, administrative support was most clearly tied to project success. Though a goal of the CSU system is to establish faculty-initiated outcomes assessment, these initiatives will most likely fail without the support of academic administrators. University administration sets the "tone" in reference to the academic legitimacy of such efforts. Unless outcomes assessment efforts are rewarded and supported by administration, it will be difficult to maintain faculty motivation.

Student support appeared only moderately related to reported outcomes. Though this source of support was assessed through the eyes of the project directors rather than from the students themselves, this result does not appear unreasonable. A few directors did speak to the fact that students will usually support any program modifications properly justified by the faculty.

Unless outcomes assessment efforts are rewarded and supported by administration, it will be difficult to maintain faculty motivation.

Support in the form of budget and supplies was unrelated to project success. A probable post hoc explanation is that many of the directors were supporting their project "out of their hide." The efforts of some directors clearly went beyond what might have been expected given the modest budgets they were receiving for their administration of each project. This phenomenon was more likely to occur if the director was working in a content area for which outcomes assessment research could be considered legitimate professional development or for senior faculty members who had achieved tenure.

Another possible explanation for the inconsistency between budget and project success would be the inherent differences in requirements for adequate assessment procedures across different content areas. It may be possible that adequate assessment can be achieved for relatively small costs in some disciplines, but will be very expensive in others. Consequently, adequate results might be obtained for some even when resources are tight while others will find assessment prohibitive without additional budgetary support.

Existing Student Outcomes Assessment Procedures

Seven directors reported existing outcomes assessment programs in place at the time of their pilot projects. When asked to describe how existing procedures or attitudes might have contributed to the effectiveness of the pilot projects, responses were diverse. Five directors reported negative impact. Faculty suspicion and apathy were the major hurdles reported. One director reported that the faculty saw the project "... as a threat at worst and a waste of time at best."

There were four reports of positive impact. Faculty education and exposure to successful student outcomes assessment procedures was reported to have been helpful to two of the projects. An existing faculty desire to clarify program goals was reported as a contributing factor to the success of one project.

While these reports were somewhat mixed in the final analysis, project outcomes showed very little association with these perceived existing attitudes. The good news of this result is that projects breaking new ground do not necessarily have to anticipate damaging levels of resistance. The bad news may be that previous experience with outcomes assessment may not guarantee that new initiatives will be welcomed with open arms.

Project Focus

A quick review of Table 1 confirms the fact that the content areas of projects varied considerably. Intended "breadth of audience" also varied. Nine directors indicated that they had shared results beyond the reports requested by funding sources. Six projects have achieved nationwide recognition via national organizations, conferences, or major publications.

The institutional level at which projects were implemented filled the entire range from a single selected class to a project that is now replicating the project at eighteen campuses nationwide. Altogether, three were applied to selected classes, four were departmentwide, two were at the school level, two were universitywide, and two were at least systemwide.

The content area in which the project occurred had little to do with the relative success of the project.

The content area in which the project occurred had little to do with the relative success of the project. However, the intended breadth of the audience (who and how many individuals/organizations the project director expected to learn about the results of his/her project) was very closely associated with outcomes, especially indirect outcomes.

While it might have been expected that content areas such as education or behavioral sciences would be more readily adapted to outcomes assessment, findings of the evaluation study did not support this conclusion. Projects in humanities and sciences were equally as successful as those in education and behavioral sciences. This is good news for campuses that hope to initiate outcomes assessment across a universe of content domains.

The tight association between the intended breadth of the audience for the project's results and project outcomes is somewhat surprising, but is perhaps logical in that the excellence of project outcomes should be related to how many individuals or organizations with which the director intends to share the results. This result may also reflect the director's experience and enthusiasm for student outcomes assessment. As previously observed, project director efficacy in outcomes assessment was closely associated with project outcomes.

ANALYSIS OF METHODOLOGICAL FACTORS

General Procedural Adequacy

Project goals were as diverse as the programs they were intended to serve, and are consequently difficult to summarize. Many had the objective of testing feasibility of outcomes assessment within the specific academic program. Another common objective was to try out different types of external evaluators. The most common objective not directly related to the assessment process itself was the desire to clarify/develop programmatic objectives.

The types of outcomes assessed also varied dramatically. They included: assessment of simple content knowledge; demonstration of specific process skills; student, alumni, faculty, and the public's attitudes toward the program; attainment of post-graduate goals (e.g., employment status, general satisfaction with preparation, employers' satisfaction with the program's graduates); and the development of specified attitudes/beliefs.

Many methods of outcome measurement were employed. These included written examinations (objective and essay), oral examinations, personal interviews, graded assignments, project evaluations, and attitudinal rating scales/surveys.

The most common objective not directly related to the assessment process itself was the desire to clarify/develop programmatic objectives.

In reference to general procedural adequacy, the most important aspect of the assessment projects appeared to be the adequacy of the measures they developed or adopted. It is highly logical to expect that project success would hinge on the ability of the measures used to reliably and validly measure student outcomes. This process begins with the selection of appropriate outcomes to measure.

Other variables in this category, though not highly ranked in their association with direct outcomes, were toward the top of the list in relation to indirect outcomes. Much of this relationship appeared dependent upon the association

with the indirect outcome of external adoption. Those projects bound for adoption were generally the most precise in the definition of project goals and most ambitious and accurate in the production of statistical analyses.

Project Comprehensiveness

The projects varied somewhat in how many methods of evaluation were used by each project. At least four used only a single type of measure. Projects varied dramatically in their focus on sensitivity to multicultural issues. Multicultural issues were integral to the goals of some projects while others did not even collect appropriate demographic information. The "report comprehensiveness" of projects also varied dramatically. While some provided highly detailed volumes of documentation of their activities, others barely completed summative reports to meet minimum requirements of their funding agencies.

The "development of multiple measures" of student outcomes and "sensitivity to multicultural issues" appeared moderately associated with project outcomes. The comprehensiveness of the reports made available was not closely related to project outcomes.

The relatively high ranking of "sensitivity to multicultural issues" and the "development of multiple measures" may again reflect the sophistication of the project director in reference to good outcomes assessment. It is also reasonable to expect projects that developed or used more than one form of assessment to be more successful.

Sensitivity to multicultural issues would appear especially relevant to the potential for recruitment and retention of underrepresented students. This would partially explain the relatively high ranking of this variable in reference to indirect outcomes.

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The low association between the comprehensiveness of project reports and project outcomes might indicate that much occurred but was not completely reported. Many directors indicated that deadlines fell before they had time to adequately process the project results. Some compensated by disseminating results via other channels (e.g., regional and national presentations, journal publications).

Cost Effectiveness of Project

While projects varied dramatically in their cost per student participant, the "utility/economy" of the projects' assessment procedures was near the bottom of the rank ordering in reference to its association with project outcomes. Apparently expensive projects in terms of their dollars-spent-to-students-assessed were not always the richest in results.

This result is perfectly reasonable given the experimental nature of these projects. Directors tried a wide variety of assessment procedures to see which

might work best. Also, there may be some cost differences across disciplines necessitated by the different nature of assessment processes. Some content areas may be able to conduct excellent "cheap" assessment, while other areas may only achieve moderate results despite a high price tag.

Nevertheless, there is some logic to the assumption that efficient assessment will produce more desirable results. As more data is collected, this relationship should be reassessed within content areas.

PROJECT OUTCOMES

Direct Outcomes

A critical outcome was defined as continuation of the project beyond the original year of funding. Seven projects were not continued. Lack of funding was the main reason given for program closure. Of those projects that continued, some had obtained no additional funding, and some were receiving very minimal departmental/university support. The projects that reported receiving additional support included one with an API continuation grant, one with an AAC/FIPSE grant originating before the API grant, and one with no report of its funding source.

Directors were also asked to assess the level of achievement of different potential project outcomes. Of those outcomes identified as direct outcomes, almost all directors reported development of good measures of student outcomes as an achievement of their projects. Most reported curricular improvement, increase in student feedback, clarification of instructional goals/objectives, increase in faculty assessment skills, and successful dissemination of information to other departments/schools/universities. As a whole, directors were less certain about gains in student achievement, improvement in teaching by the faculty involved, and development of new or improved uses of existing databases.

Indirect Outcomes

Of those outcomes identified as indirect outcomes, most directors reported improved self-evaluation of the academic program, improved faculty attitude toward assessment activities, and greater visibility of assessment activities. Overall, somewhat less impact was perceived on student recruitment, student attitude toward assessment activities, and institutional attitude toward assessment. Directors reported less success with the development of new sources of revenue/support. Seven directors reported that they were able to successfully adopt or use methods developed by other departments or institutions.

Of those outcomes identified as indirect outcomes, most directors reported improved self-evaluation of the academic program, improved faculty attitude toward assessment activities, and greater visibility of assessment activities.

When asked to describe other significant outcomes, four directors reported a significant amount of "self-improvement" in their personal understanding of student outcomes assessment, their ability to teach, and clarification of their

program's objectives. Two also referred to similar improvements enjoyed by all faculty participating in the project. Two directors reported that the project had resulted in changes/improvements in their programs' curriculum and definition of objectives. One director reported that the project formed the basis for a prototype assessment procedure that is being piloted for use statewide.

Conclusions and Recommendations

The conclusions and recommendations drawn from an overview of the study's results are organized in terms of the four major variables in association with project effectiveness: faculty participation, administrative support, backgrounds of project directors, and measurement adequacy.

FACULTY INVOLVEMENT

Recruiting and maintaining faculty support was a key variable in project success, but it also showed high variability across projects. One concern in nearly all faculty groups was "the intended primary use of the outcomes data," particularly where data suggested evidence of teaching/program effectiveness. Another might be described as the worry over the human capital costs of department-level assessment activities. This turned up as a particular concern for junior faculty. Many junior faculty perceived that research on teaching and learning was regarded as "second-tier" research which might not be counted in the tenure/promotion process. Several project directors indicated that assessment activities favor two faculty groups: (1) those in social/behavioral disciplines, and (2) those whose professional research activities "fit" with assessment research.

Recruiting and maintaining faculty support was a key variable in project success....

Three general guidelines for establishing and maintaining faculty involvement in assessment can be drawn from the experiences of CSU project directors:

1. **Educate participants about the value of assessing student outcomes.** The motivation required to commit to outcomes assessment is dependent upon a general perception that this effort will have positive results. Informational meetings can be used to acquaint participants with the purposes of assessment, especially in terms of improving teaching and learning and academic programs. On an individual basis, participation will be enhanced if assessment activities are recognized in departmental faculty performance criteria.

2. **Maintain local control of the project.** Support is dependent upon the perception of local autonomy. Local control in the planning, implementation, and dissemination of the project is important to the faculty belief that the project will be relevant to and consistent with their own objectives. However, involvement of appropriate faculty governance groups is also of critical importance.

3. **Overcome perceived threats.** It is important that project goals be clearly stated and related to the educational program, and that faculty members participate in planning the uses of the data to be collected. It is also important to ensure that data are used for their intended purposes, and that proper safeguards are in place to prevent potential misuse of assessment data.

ADMINISTRATIVE SUPPORT

The importance of the development of administrative support was consistently reported across projects. Data from the majority of respondents suggested that "in-kind" resources, publicity, campus-level coordination, and establishing a climate receptive of assessment initiatives were important positive contributions of administrative offices. Even in this positive environment, however, better integration of the assessment agenda in campus-level policy and more concrete recognition of assessment activities for professional development are needed.

...better integration of the assessment agenda in campus-level policy and more concrete recognition of assessment activities for professonal development are needed.

Two general recommendations can be made on the basis of this study's findings. The first deals with the establishment of administrative support, the second partially defines the nature of the support sought:

4. **Educate administrators about the value of assessing student outcomes.** Just as executives of business organizations value economic indicators for their companies, educational administrators need to understand the potential value of performance feedback inherent in the assessment of student outcomes. They must also be sensitized to the need for discretionary, constructive use of such data.

5. **Obtain support of administrators for recognizing and rewarding the development of outcomes assessment in one's field as legitimate professional development.** Outcomes assessment activities should be recognized as legitimate professional development by chairs, deans, and department/school/university evaluation committees in control of the retention, promotion, and tenure process. This recognition should be treated equally across disciplines.

TRAINING/EXPERIENCE OF PROJECT DIRECTORS

Project directors' training/experience in measurement and analysis was key to project effectiveness, and here there were important differences. Some project directors reported dismay over the difficulties in learning assessment procedures as the project progressed. A number of respondents echoed the sentiments of one director who felt that the project lost momentum "just as experience and proficiency began to develop."

These observations clearly suggest the importance of training in outcomes assessment for those administering assessment programs. Two general recommendations flow from the comments made by project leaders:

6. **Evaluate the project director's training/experience specific to assessing student outcomes.** General knowledge and experience as an educator is not enough. Project directors need to have an adequate level of expertise in planning and implementing assessment programs as well as selecting or designing appropriate measuring instruments for data collection, analysis, and reporting. Directors' training in the field will offset any lack of experience of other project participants.

7. **Provide continuous opportunities for training in and exposure to outcomes assessment.** Continuous interest and updated field knowledge of project directors are necessary for successful implementation and eventual institutionalization of assessment programs. Therefore, opportunities for professional development in this area, such as attending national assessment conferences, receiving training from experienced practitioners, or sharing information among colleagues, are very important for kindling directors' interest in the process.

PROJECT PROCEDURES AND MEASUREMENT ADEQUACY

The key methodological variable was the development or adoption of adequate measures of student outcomes. Adequacy of measurement implies several aspects. The first is the simple psychometric properties of the assessment. This involves the reliability and validity of the assessment procedures. As an example of awareness of measurement adequacy, several directors did an excellent job of assessing the inter-rater reliability of judges producing qualitative assessments of student projects or papers. Others spent considerable time and consulted widely with their peers to evaluate the content validity of their assessments. This process often has positive, retroactive impact on curriculum and teaching strategies.

Multicultural sensitivity also contributes to the adequacy of measurement, especially in reference to the inferences drawn from assessment scores. A critical question for directors to ask is: "What assessment procedures will provide all students with an equitable opportunity to demonstrate their competence?" This consideration should result in the production of multiple, more creative indices that would provide a more comprehensive picture of student achievement.

The bottom line is that measures cannot be haphazardly developed or selected.

Multiple types of assessment also enable directors to obtain feedback on more than one type of outcomes. Rather than focusing solely on content or cognitively based outcomes, additional measures of affective and attitudinal variables should result in a much richer, more complex basis for judgments of program adequacy.

The bottom line is that measures cannot be haphazardly developed or selected. Future faculty initiators of student outcomes assessment will decide for themselves what and when to assess, but the findings of this study indicate that they will need a good deal of technical support in order to implement an effective assessment program.

The following summary recommendations are derived from observations related to procedural and measurement adequacy:

8. **Clearly define educational objectives.** The nature of the assessment tools cannot be determined until the desired outcomes are described. A healthy re-evaluation of curriculum and program goals is a necessary precursor to the development of the actual assessment instruments.

9. **Use multiple measurement techiques.** Since educational objectives are seldom unidimensional, it makes little sense to attempt to assess educational criteria with a single measure. The richest data sources enabling the clearest assessment of program outcomes involve combinations of contents tests, performance-based demonstrations, attitude assessments, affective measures, etc.

10. **Be sensitive to test fairness across constituent groups**. Effective assessment programs must address issues of differential performance across groups. Assessment procedures must take into account and minimize possible test bias resulting from such cultural/socioeconomic factors as native language speaking and disadvantaged preparation for higher education.

11. **Examine measurement reliability and validity for all instruments used.** The importance of this recommendation cannot be overemphasized. If an assessment instrument does not possess adequate psychometric properties, it provides no basis for meaningful inference concerning the relative performance of the student or the success of the academic program. Assessment project directors should work together with psychometrics experts, if they themselves are not, to validate the measures to be used before starting the data collection procedure.

12. **Plan to adequately disseminate project results.** Projects with explicit dissemination plans will keep project directors active in publishing and reporting project results. Stories of successful projects and their results are helpful to other faculty-initiated assessment programs, and help to build the knowledge base for future assessment efforts.

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ACADEMIC PROGRAM IMPROVEMENT

The Academic Program Improvement (API) Campus Grants Program was created to assist faculty in developing innovative approaches to improve both teaching and student learning through pilot projects, workshops, and conferences. From 1972 to 1992, an estimated 150,000 students and 13,000 faculty directly participated in one of the projects, workshops, or conferences sponsored by the program. An even greater number have benefited indirectly as the effects of instructional improvements are felt by subsequent groups of students and as faculty learn from colleagues who have adopted these changes in curricula and teaching methods.

Funds have been provided for faculty assigned time, clerical and student assistance, and supplies and materials not otherwise available through normal campus and departmental support. The overwhelming majority of the projects initially supported through API continue with support from the campus institutional budget.

For additional information on the API program, or on any of the projects described in this brochure, the reader should contact:

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